

Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

Claims 1-43 (Previously cancelled).

44. (Previously presented) A process for producing a three-dimensional object, the process comprising the steps of:

providing a container arranged within a process chamber and a carrier that can be moved in the container;

forming the object on the carrier in the container by sequential selective solidification of layers of a solidifiable powder material at positions corresponding to the cross-section of the object in the particular layer; and

controllably removing non-solidified powder material after forming the object.

45. (Previously presented) The process according to claim 44, further comprising, after forming the object, raising the carrier successively within the container and removing the non-solidified powder material present in the region of the container rim.

46. (Previously presented) The process according to claim 44, wherein removing the non-solidified powder material is performed mechanically.

47. (Previously presented) The process according to claim 46, wherein removing the non-solidified powder material is performed by brushes.

48. (Previously presented) The process according to claim 44, wherein removing the non-solidified powder material is performed by a fluid.

49. (Previously presented) The process according to claim 48, wherein removing the non-solidified powder material is performed by a gas stream.

50. (Previously presented) The process according to claim 49, further comprising directing the gas stream essentially tangentially to the surface of the powder material.

51. (Previously presented) The process according to claim 49, further comprising controlling the direction of the gas stream.

52. (Previously presented) The process according to claim 51, further comprising directing the gas stream essentially tangentially to the surface of the powder material.

53. (Previously presented) The process according to claim 49, further comprising blowing away the non-solidified powder.

54. (Previously presented) The process according to claim 49, further comprising removing the non-solidified powder by suction.

55. (Previously presented) The process according to claim 46, further comprising removing the non-solidified powder by suction.

56. (Previously presented) The process according to claim 44, further comprising raising the carrier continuously after forming the object.

57. (Previously presented) The process according to claim 44, further comprising raising the carrier stepwise after forming the object.

58. (Previously presented) The process according to claim 44, further comprising cooling the object is cooled during removing of the non-solidified powder.

5957. (Currently amended) The process according to claim 58, further comprising directing a gas stream essentially tangentially to the powder surface to cool the object.

6059. (Currently amended) The process according to claim 44, further comprising removing the container from the process chamber after forming the object.

6160. (Currently amended) The process according to claim 44, further comprising tilting the container at a predetermined angle to the vertical after forming the object.

6261. (Currently amended) The process according to claim 6160, further comprising removing the non-solidified powder and the object by raising the carrier in the container and successive overflowing of an edge of the container.

6362. (Currently amended) The process according to claim 6261, further comprising providing a sieve device and separating the non-solidified powder and the object from one another in the sieve device.

6463. (Currently amended) The process according to claim 44, further comprising collecting the non-solidified powder and transporting away the non-solidified powder.

6564. (Currently amended) The process according to claim 44, further comprising treating the surface of the object during removal of the non-solidified powder material.

6665. (Currently amended) The process according to claim 48, further comprising controlling the temperature of the fluid.

6766. (Currently amended) The process according to claim 6665, further comprising controlling the temperature of the fluid and the ambient temperature of the container.

6867. (Currently amended) The process according to claim 48, further comprising controlling the ambient temperature of the container.

6968. (Currently amended) The process according to claim 44, further comprising providing a source of electromagnetic radiation and solidifying the powder material under action of electromagnetic radiation.

7069. (Currently amended) A device for producing a three-dimensional object by sequential solidification of layers of a solidifiable powder material, the device comprising:

- a container for accommodating the object to be produced;
- a carrier that can be moved in the container; and
- an apparatus for controlled removal of non-solidified powder material after producing the object.

7170. (Currently amended) The device according to claim 7069, further comprising a cooling apparatus for controlled cooling of the object during the controlled removal of non-solidified powder.

7271. (Currently amended) The device according to claim 7069, wherein the container has an upper rim and wherein the apparatus for controlled removal of non-solidified powder material comprises a conduit for supplying a stream of fluid essentially tangentially to the upper rim of the container.

7372. (Currently amended) The device according to claim 7271, further comprising a source for providing suction for removing non-solidified powder material.

7473. (Currently amended) The device according to claim 7069, further comprising a means for continuous or stepwise raising of the carrier in the container.

7574. (Currently amended) The device according to claim 7069, wherein the container has an upper rim and the device further comprises an overflow region curved outwards in a region on the upper rim.

7675. (Currently amended) The device according to claim 7574, further comprising means for tilting the container by a predetermined angle (A) to a vertical in the direction of the overflow device.

7776. (Currently amended) The device according to claim 7675, further comprising a means for separating the non-solidified powder material from the object.

7877. (Currently amended) The device according to claim 7069, further comprising means for mechanical removal of the non-solidified powder material.

7978. (Currently amended) The device according to claim 7069, further comprising a chamber surrounding the container and a controller for control of the temperature surrounding the container.

8079. (Currently amended) The device according to claim 7069, wherein the apparatus for controlled removal of non-solidified powder material comprises a conduit for supplying a stream of fluid to remove the non-solidified powder material and the device further comprises a controller for control of the temperature of the fluid.

8180. (Currently amended) The device according to claim 7069, further comprising a conduit for supplying a stream of a gas stream to remove the non-solidified powder material.

8281. (Currently amended) The device according to claim 7069, further comprising a means for automatic infiltration of the object with a material.

8382. (Currently amended) The device according to claim 8281, wherein the material is wax.

8483. (Currently amended) The device according to claim 8281, wherein the material epoxy resin.

8584. (Currently amended) A device for automatic unpacking and/or cooling of a three-dimensional object that is produced by sequential solidification of layers of a solidifiable powder material, the device comprising:

a container for accommodating the object to be produced;
a carrier that can be moved in the container; and
an apparatus for controlled removal of non-solidified powder material after producing the object.

8685. (Currently amended) The device according to claim 8584, further comprising a cooling apparatus for controlled cooling of the object during the controlled removal of non-solidified powder.

8786. (Currently amended) The device according to claim 8584 in combination a second device for producing a three-dimensional object, the device being located and arranged inside the second device.

8887. (Currently amended) The device according to claim 8786, wherein the second device is a laser sintering device.

8988. (Currently amended) A device for automatic unpacking and/or cooling of a three-dimensional object that is produced by sequential solidification of layers of a solidifiable powder material, the device comprising:

a container for accommodating the object to be produced;

a carrier that can be moved in the container; and
a cooling apparatus for controlled cooling of the object during the controlled removal of non-solidified powder.

9089. (Currently amended) A process for producing a three-dimensional object, the process comprising the steps of:

providing a container arranged within a process chamber and a carrier that can be moved in the container;

forming the object on the carrier in the container by sequential selective solidification of layers of a solidifiable pulverulent material at positions corresponding to the cross-section of the object in the particular layer; and

controllably cooling of the object after forming it.

9190. (Currently amended) The process according to claim 9089, wherein the cooling is effected by providing a gas to the object.

9291. (Currently amended) The process according to claim 9190, wherein providing the gas comprises blowing the gas into the non-solidified powder.

9392. (Currently amended) The process according to claim 9190, wherein providing the gas comprises blowing the gas over an exposed surface of the object in the powder.

9493. (Currently amended) The process according to claim 9089, further comprising providing additional treatment to the object during cooling.

9594. (Currently amended) The process for producing a three-dimensional object, the process comprising the steps of:

forming the object by sequential selective solidification of layers of a solidifiable pulverulent material at positions corresponding to the cross-section of the object in the particular layer; and

subjecting the object to infiltration with a material.

9695. (Currently amended) The process according to claim 9594, wherein the material is a wax.

9796. (Currently amended) The process according to claim 9594, wherein the material is epoxy resin.

9897. (Currently amended) The process according to claim 9594, further comprising controlling the temperature of the infiltration of the object.

9998. (Currently amended) The device according to claim 7068, further comprising process chamber in which the container and carrier are disposed and in which the object is formed, and wherein the apparatus for controlled removal of non-solidified powder material is disposed outside the process chamber.